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(54) Superhard cutting element having reduced surface roughness

(57) A superhard cutting element (10) having a polished, low friction substantially planar cutting face (40) with a surface finish roughness of 254 nm (10  $\mu$  in.) or less and preferably 12,7 nm (0,5  $\mu$  in.) or less.

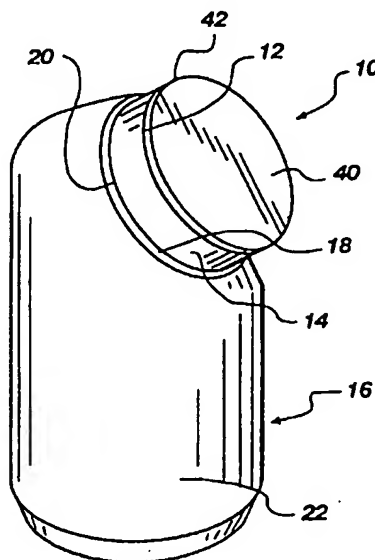


Fig. 1

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## EUROPEAN SEARCH REPORT

Application Number  
EP 94 87 0183

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL. 6)
X	EP-A-0 541 071 (SUMIMOTO ELECTRIC INDUSTRIES LIMITED)  * page 18 * * page 6, line 30 - line 37 * * abstract *	1,2, 4-10, 14-23	E21B10/56 B23B27/14 B24B3/60 B24B37/00
A	* page 4, line 1 - line 2 *	11 24-29	
X	EP-A-0 480 394 (SUMIMOTO ELECTRIC INDUSTRIES LIMITED)  * page 12 * * abstract * * column 4, line 42 - line 44 *	1,2, 4-10, 14-23	
A	* page 2, line 21 - line 26 *	11 24-29	
X	EP-A-0 298 729 (SUMIMOTO ELECTRIC INDUSTRIES LIMITED)  * abstract * * page 3, line 53 * * page 5; table 1 * * page 3, line 35 - line 44 *	1,2, 4-10, 14-23	TECHNICAL FIELDS SEARCHED (Int. CL. 6)  E21B B23B B28D B24B
A	* page 4, line 18 - line 21 *	11 24-29	
Y	US-A-5 184 433 (MAACK) * column 2, line 50 - line 53 *	24-29	
A	US-A-4 693 035 (DOYLE) * column 1, line 19 - line 26 *	24-29	
A,D	US-A-4 976 324 (TIBBITS)  * column 3, line 40 - line 44; claim 1 *  -/--	1,11,14, 22	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>13 September 1996</b>	Examiner <b>Sogno, M</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EP 94 87 0183

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US-A-4 539 018 (WHANGER) * column 5, line 4 - line 11 * * column 4, line 37 - line 46 * ---	1,11,14,22	
A	EP-A-0 149 530 (CDP, LIMITED) * claim 31 * ---	1,11,14,22	
A	US-A-4 211 508 (DILL) * abstract * * claim 1 * ---	1,11,14,22	
A	US-A-5 011 509 (FRUSHOUR) * claim 2 * ---	1,11,14,22	
A	DE-A-42 40 053 (AGATHON AG MASCHINENFABRIK) * the whole document * ---	24-29	
A	DE-A-41 41 900 (VOLLMER WERKE MASCHINENFABRIK GMBH) * the whole document * ---	24-29	
A	US-A-5 215 415 (FUKUOKA) * column 5, line 61 - line 66 * -----	24-29	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
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